A screenshot of a cell phone

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**The Smart House**

System Design

PCT01

Group 4

2019/2020

We are going to build up a system that consist of many subsystems which will cover each part of the student hotel.

To build up such a system, we will use the following components:

**The selected software components to build up the system:**

* C# to program the registration app using by the receptionists.
* C to program the Arduino.

**The selected hardware components to build up the system:**

* Some Arduino boards.
* Many LEDs and RGB-LEDs to simulate the lighting system.
* Many Buttons and Potentiometers to make the system user friendly.
* DHT11 to keep track of the changing temperature and humidity.
* LDR to indicate the brightness and the daytime.
* PIR motion sensor to be used in the hall of the hotel.
* Buzzer to simulate an alarm system.
* RFID to identify the student entering a specific room.
* Servo to open and close many things like doors, curtains.
* Water sensor to indicates any water leaking issues.
* Smoke and Gas detector to ensure the safety of the hotel.
* Many breadboards and jumper wires to connect all the components together.

**Here is a detailed system design for each subsystem to demonstrates how it was built and how it works:**

The Registration app:

The Adaptive lighting system:

A circuit board

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The Smoke & Gas & Water system:

A circuit board

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The Motion detector system:

A circuit board

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The Rooms system:

A circuit board

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